



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,338	08/04/2003	Michael Frank	PIX-P-053	6762
32566 7590 03/07/2007 PATENT LAW GROUP LLP 2635 NORTH FIRST STREET SUITE 223 SAN JOSE, CA 95134			EXAMINER GILES, NICHOLAS G	
			ART UNIT	PAPER NUMBER
			2622	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/07/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/634,338

Applicant(s)

FRANK, MICHAEL

Examiner

Nicholas G. Giles

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01/12/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Specification***

1. The amendments to the specification filed 01/12/2007 are accepted.

***Response to Arguments***

2. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata et al. (U.S. Patent No. 6,753,910) in view of Uchikawa (U.S. Patent No. 7,123,294).

Regarding claim 1, Ogata et al. discloses:

A digital imaging system, comprising: an image sensor comprising a two-dimensional array of pixel elements (CCD 2, 4:22-5:7) and an image buffer for storing pixel data of each captured image (memories 4S and 4N, 4:22-5:7), said image sensor outputting digital signals on a pixel bus as pixel data representing an image of a scene (4:22-5:7, 5:45-5:50); an interface circuit couple to receive said pixel data from said pixel bus (gradation correction circuit 8, Figs. 5 & 9, 6:32-57, and 9:30-10:13);

where said interface circuit comprises a noise reduction circuit performing signal processing on said pixel data received on said pixel bus for noise reduction (6:32-57 and 9:30-10:13, the smoothing is the noise reduction).

Ogata et al. is silent with regards to a frame buffer storing the pixel data provided by the interface circuit and an image processor processing the pixel data to generate image data for display. Uchikawa discloses this limitation in 3:29-40. An advantage of doing so allows a user to view the images he/she is capturing in order to verify the desired scene. For this reason it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Ogata's system include a frame buffer storing the pixel data provided by the interface circuit and an image processor processing the pixel data to generate image data for display.

Regarding claim 2, see the rejection of claim 1 and note that Ogata et al. further discloses:

Noise reduction circuit performs an infinite impulse filtering operations using a fixed blending coefficient (6:32-42).

Regarding claim 3, see the rejection of claim 2 and note that Ogata et al. further discloses:

Noise reduction circuit performs said infinite impulse filtering operation by averaging multiple number of frames of pixel data provided by said image sensor using said fixed blending coefficient (6:32-57 and 9:30-10:13).

Regarding claim 4, see the rejection of claim 3 and note that Ogata et al. further discloses:

Noise reduction circuit calculates new pixel data for each frame of pixel data received using the equation:  $\text{new data} = \alpha * \text{input data} + (1 - \alpha) * \text{old data}$ , where "new data" represents the final pixel data, "input data" represents the pixel data of the current frame to be averaged, "old data" represents the pixels data previously averaged, and " $\alpha$ " represents said fixed blending coefficient (6:32-57).

Regarding claim 5, see the rejection of claim 1 and note that Ogata et al. further discloses:

Noise reduction circuit performs a multisample averaging operation using a data and exposure time dependent blending coefficient (6:32-57 and 9:30-10:13, the process uses a normal exposure and short exposure).

Regarding claim 6, see the rejection of claim 5 and note that Ogata et al. further discloses:

Noise reduction circuit performs said multisample averaging operation by averaging multiple reads of the same frame of pixel data provided by said image sensor and applying said data and exposure time dependent blending coefficient (6:32-57 and 9:30-10:13).

Regarding claim 7, see the rejection of claim 6 and note that Ogata et al. further discloses:

Noise reduction circuit calculates new pixel data for each frame of pixel data received using the equation:  $\text{new data} = \alpha * \text{input data} + (1 - \alpha) * \text{old data}$ , where "new data" represents the final pixel data, "input data" represents the pixel data of a current frame to be averaged, "old data" represents the pixels data previously averaged, and " $\alpha$ " represents said data and exposure time dependent blending coefficient (6:32-57).

Regarding claim 8, see the rejection of claim 7 and note that Ogata et al. further discloses:

Noise reduction circuit receives previously averaged pixel data to obtain data dependent blending coefficient for averaging said current pixel data (6:32-57 and 9:30-10:13).

Ogata et al. is silent with regards to the function used for obtaining the coefficient being storing in a lookup table instead. Official Notice is taken that it was well known at the time the invention was made to store functions in tables instead. An advantage to doing so is that computations don't have to be made during processing in hardware and software thus simplifying the hardware and software requirements. For this reason it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Ogata's system include to the function used for obtaining the coefficient being storing in a lookup table instead.

It is noted by the examiner that because the applicant has failed to timely traverse the old and well-known statement above, it is now taken as admitted prior art. See MPEP 2144.03(c).

***Allowable Subject Matter***

5. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 9, no prior art could be located that teaches or fairly suggests using a blending coefficient lookup table that uses a total exposure time index value to index the table for obtaining an exposure time dependent blending coefficient for averaging the current frame of pixel data in combination with the rest of the limitations of the claim.

***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2622

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas G. Giles whose telephone number is (571) 272-2824. The examiner can normally be reached on Monday through Friday from 7:30am to 4:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc - Yen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NGG

  
NGOC-YEN VU  
SUPERVISORY PATENT EXAMINER